

Journal of the American Society of Professional Graphologists

A Tribute To Dan Anthony

Alan Levine, M.D., et al.

Graphological Typology for Visionaries

Ruth Elliott Holmes

Indicators of Sexual Abuse in Handwriting

Suzy Ward

Alcohol Abuse Therapy & Handwriting

E. Edward Peeples, Ph.D. & George Bishop

Measuring Handwriting to Identify Thinking & Behavioral Styles in Four Quadrants of the Brain

Jeanette Farmer

Value of Graphological Training for the Handwriting Identification Expert

Patricia Siegel

High Stakes: The Gamble for the Howard Hughes Mormon Will

Marc J. Seifer, Ph.D.

ISSN:1048-390X

Volume IV
Winter 1995/96

THE JOURNAL OF THE AMERICAN SOCIETY OF PROFESSIONAL GRAPHOLOGISTS

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American Society of Professional Graphologists

ALCOHOL ABUSE THERAPY & HANDWRITING

E. Edward Peeples, Ph.D., and George Bishop

ABSTRACT: Adult alcoholics in psychotherapy wrote a paragraph on unlined paper. These handwriting samples were compared to those from sex-age matched controls. Fifteen handwriting characteristics in each sample were measured using a digitizing tablet connected to a personal computer. Seven of the fifteen measurements were significantly different between the two populations. All means (averages) of the handwriting characteristics were smaller in the alcohol abuse population except for that of the width of the Personal Pronoun I which was larger in the recovering alcoholic population. The smaller writing of the alcoholics in successful therapy may be due to their greater effort to maintain self-control, to a need to focus inward upon themselves or to some other aspect of their therapeutic program that has not been determined. The possible use of handwriting in determining the success of psychotherapy is discussed.

INTRODUCTION

Alcoholism is a major concern of our society. Its cost to society is astronomical in terms of lost productivity, traffic deaths, suicides and health costs (Lewinson, 1989). There is also a cost in future well-being of lives not yet born.

One theory of alcoholism (Goodwin, 1979), is that it is a complex reaction to environmental stimuli exacerbated by genetic factors associated with excesses and limitations. The potential alcoholic must be able to consume a lot of alcohol (i.e., lack of intolerance for alcohol), experience a greater euphoria from alcohol consumption, experience dysphoria requiring more alcohol (i.e., a hangover), and relapse after periods of binge drinking. These factors lead to conditioned responses to the environment leading to alcoholism.

Drinking alcohol produces a short-term transient change in brain function similar to that of depression, even though the immediate reaction may be euphoric. The effect of consuming alcohol on handwriting is rather marked. There is an impairment of handwriting causing, in general, a larger handwriting and a lessening of fine motor control, although this response is not consistent enough to be measurable for forensic purposes.

Beck (1985) identified three stages of handwriting responses to alcohol: (a) normal mild drinker: graphics essentially indistinguishable from the state of being sober; (b) intoxicated for the non-drinker and the alcoholic: enlarged and careless writing, illegible, disintegrated; withdrawal (alcoholic is sober, but not well): lack of fluency and regularity to the writing, signs of tension, tremor, angular forms, ataxic movement, and sometimes decreased size. Intoxication and withdrawal are opposite extremes of the state of being normal. In both cases there is loss of control, due to depressed relaxation with intoxication, and due to increased tension in withdrawal.

Geller, et al. (1991) reported a novel way to use handwriting to prevent alcohol-impaired driving, a most significant health problem and the Number 1 killer of young people. As each of 61 students entered a fraternity party he or she was asked to sign a consent form and write the sentence, "I have read and understand the above statement." At the same time, their blood alcohol level was determined by an Alco-Sensor III breathalyzer that had recently been calibrated. Upon exiting the party, the 61 students again were asked to sign their name, and each took the breathalyzer test. When the exit BAL was 0.10 indicating legal intoxication, 90% of the 28 judges correctly discriminated the exit from the entrance sentences. When the BAL's reached 0.15, 25 of the 28 judges discriminated 80% or more of the intoxicated parties by signature alone.

Each of the above papers relating alcoholism to handwriting are concerned with the immediate effects of drinking of alcohol and both are based upon gross visual viewing of the handwriting. This paper reports on the effects of alcohol on handwriting during the time the alcoholic is no longer drinking the substance. Indeed, the alcoholic is being counseled for the disorder. The results of careful measurements indicate the handwritings of recovering alcoholics are generally smaller than the handwritings of normal controls (see Beck, 1985).

METHODS

The handwritings of 62 alcoholic patients of a psychotherapist (Bishop) are compared to the handwritings of 66 sex-age matched controls. Where the patients were in some form of recovery, the controls were randomly chosen writers taken from various handwriting conferences who did not have alcohol problems. These controls were matched for age and sex. Each of the subjects wrote a sample of their handwriting on a blank sheet of paper using a medium ball-point pen.

The alcoholics had been in psychotherapy for 28 days inpatient and 12 weeks aftercare. Average age of the alcoholic population was 39, with 55% males. Controls had an average age of 49 with 44% males.

THE QUICK RED FOX JUMPS OVER THE LAZY BROWN DOG.

"The quick red fox jumps over the lazy brown dog.

"The quick red fox jumps over the lazy brown dog."

"The quick red fox jumps over the lazy brown dog."

THE QUICK RED FOX JUMPS OVER THE LAZY BROWN DOG.

Figure 1. Handwriting samples of alcohol abuse therapy population.

The quick red fox jumps over the lazy brown dog.

"The quick red fox jumps over the lazy brown dog."

The quick red fox jumps over the lazy brown dog.

"The quick red fox jumps over the lazy brown dog."

The quick red fox jumps over the lazy brown dog.

Figure 2. Handwriting samples of control population.

Fifteen reliable handwriting characteristics (Peeples and Retzlaff, 1993) were measured in each of the alcoholic and control samples. The characteristics measured included heights, widths, angles, or areas covered of lowercase letters *a*, *g*, *t*, *d*, *i*, and the personal pronoun *I*. Also measured were the width of the word *the* and the angle to the baseline of the letter *l*.

All measurements were made with the aid of a digitizing tablet (Jandel Scientific, CA) connected to a personal computer. After establishing that measurements of the same 25 handwriting samples by each rater gave an inter-rater reliability of 93%, individual raters made all the measurements.

The raters used the intersection of the cross-hairs on the puck of the digitizing tablet to determine the points for linear, and angular measurements; the intersection of the cross-hairs was also used to follow the line circumscribing any area to be measured. The results of the measurements were subjected to independent t-test statistical analysis.

RESULTS

Table 1 lists the 15 reliable handwriting characteristics measured in this study. These characteristics were shown to be reliable and valid by the method given in Peeples and Retzlaff (1993).

Table 2 shows that 7 of the 15 measured characteristics from the alcoholic abuse population in this study proved significantly different measurements from that of the control population. Two proved significant at the .05 level and five proved significant at the .01 level.

The means of 14 of the 15 measured handwriting characteristics of the 62 alcohol abuse samples were smaller than those from the control group. Only the mean of the width of the upper personal pronoun *I* was larger than that of the control sample.

Both measurements of the letter *g* (height of the lower loop, and area of the lower zone) were very significant or significant. Two measurements of the letter *t* (height of the stem and length of the t-bar) was also significant.

Of the four measurements of the personal pronoun *I*, only the height of the U-PPI is significant. The height of the letter *i* was not significant. These results are in agreement with Lewinson (1989) who found extremes in the height of the middle zone letter *i* in the alcoholic not in psychotherapy. However, the width of the word *the* was significantly smaller in the alcohol abuse therapy population.

Table 1. Handwriting Characteristics and Their Abbreviations

| Characteristics | Abbreviations |
|--|---------------|
| 1. Height of oval of letter <u>a</u> | Ht ov-a |
| 2. Area of oval of letter <u>a</u> | Ar ov-a |
| 3. Height of lower loop of letter <u>g</u> | Ht ll-g |
| 4. Area of lower loop of letter <u>g</u> | Ar ll-g |
| 5. Height of stem of letter <u>t</u> | Ht st-t |
| 6. Height of crossing of letter <u>t</u> | Ht c-t |
| 7. Length of crossing of letter <u>t</u> | Le c-t |
| 8. Height of stem of letter <u>d</u> | Ht st-d |
| 9. Height of letter <u>i</u> (not including dot) | Ht i |
| 10. Height of upper loop of personal pronoun I . . | Ht U-PPI |
| 11. Width of upper loop of personal pronoun I . . | Wt U-PPI |
| 12. Area of upper loop of personal pronoun I . . . | Ar U-PPI |
| 13. Area of left loop of personal pronoun I . . . | Ar L-UPPI |
| 14. Width of word <u>the</u> | Wt the |
| 15. Angle of letter <u>l</u> (with base line) | An l |

Table 2. Means and Standard Deviations of Measurements of Handwriting Characteristics from an Alcoholic Population During Therapy Compared to those from a Sex/Age Matched Control Population.

| Handwriting Characteristic | Alcohol Population | | Control Population | | P |
|-------------------------------|--------------------|---------|--------------------|---------|--------|
| | Mean | SD | Mean | SD | |
| 1. Ht ov-a (mm) | 2.76 | (0.82) | 3.14 | (1.24) | .037* |
| 2. Ar ov-a (sq mm) | 3.75 | (2.27) | 4.10 | (3.04) | .462 |
| 3. Ht lz-g (mm) | 4.54 | (2.03) | 5.77 | (2.06) | .001** |
| 4. Ar lz-g (sq mm) | 6.18 | (5.65) | 9.89 | (10.84) | .014* |
| 5. Ht st-t (mm) | 5.33 | (1.72) | 6.03 | (2.02) | .033* |
| 6. Ht c-t (mm) | 3.04 | (1.34) | 3.54 | (1.54) | .069 |
| 7. Le c-t (mm) | 5.23 | (2.76) | 7.20 | (5.32) | .008** |
| 8. Ht st-d (mm) | 5.47 | (2.04) | 5.47 | (1.81) | .999 |
| 9. Ht i (mm) | 2.37 | (0.79) | 2.50 | (0.88) | .388 |
| 10. Ht U-PPI (mm) | 4.60 | (1.56) | 5.34 | (2.07) | .021* |
| 11. Wt U-PPI (mm) | 3.20 | (2.34) | 2.97 | (2.50) | .587 |
| 12. Ar U-PPI (sq mm) | 4.39 | (5.26) | 6.08 | (6.36) | .101 |
| 13. Ar L-PPI (sq mm) | 3.03 | (2.22) | 5.41 | (11.69) | .099 |
| 14. Wt the (mm) | 12.30 | (2.91) | 13.66 | (4.67) | .044* |
| 15. An l (degrees) | 119.21 | (23.25) | 119.21 | (15.26) | .074 |

* significant at .05 level; ** significant at .01 level.

DISCUSSION

The fact that all the measurements of handwriting characteristics were significantly smaller in the alcohol abuse writers except for that of the width of the U-PPI appears to be of some consequence. Most of the controls, although randomly chosen, had some knowledge of handwriting analysis. This may have affected the data. Smaller writing such as that of scientists tends to go along with the focused writer, the one who can work with details. It would seem to go along with that person who is more self-contained, less gregarious, more of an introvert, i.e., self-centered (Lewinson, 1989). The implication would be that recovering alcoholics may be taking on these characteristics as well.

It is of some interest that the height of the U-PPI is significantly smaller than that of the control population, (alcoholic mean = 4.60mm, control mean = 5.34mm) but the width of the upper personal pronoun I is larger than that of the controls (alcoholic mean = 3.20mm, control mean = 2.97mm). The implication is that the height and width of the U-PPI are under different inherited controls. Further, if we consider the possibility that aspects of the PPI relate to both maternal and paternal archetypes, the U-PPI related to the father and the L-PPI to the mother, then perhaps we may have a clue in terms of the psychosexual relationship of the writer to his or her parents. Said in another way, if the U-PPI is shorter and wider, this may symbolically relate to a diminished influence of the father.

Although the U-PPI was shorter in the alcohol abuse writers, as compared to the controls, this area was also wider. In a sense, we could say that the U-PPI appears "squashed" in the alcohol abuse group. Nevertheless, the overall area of the U-PPI in this group was not significantly different than the controls. In other words, the U-PPI was shorter and wider in the alcohol abuse writers and taller and thinner in the controls.

That the height of the stem of the letter *t* is significantly smaller than in the controls, but not the height of the letter *d* suggests that these two similar appearing stems are not under the same genetic control. Again, the evidence that the height of the oval of the letter *a* is significantly smaller than controls but that the area of the oval of the letter *a* is not significantly smaller suggests a separate control system for the height of the letter *a* as compared to the width and consequently the area (Peeples and Retzlaff, 1991). For this to happen, the width of the letter *a* must thereby be smaller in the control population on the average since height times width gives the area of the oval.

The length of the t-bar was about 2mm shorter in the alcohol abuse population as compared to that of the control population. If lateral pressure strokes, such as t-bars, are associated with the externalization of inward aspirations, i.e.,



There is a problem I would like to deal with in my life but I am not sure how to and the difficulty I have I have been having seems to be drug abuse. Instead I would prefer to turn this into an opportunity to learn more about how to

Figure 3-a. Alcoholic before therapy.



There is a problem I would like to deal with in my life but I am not sure how to and the difficulty I have been having seems to be having control over my own life and making prosperous decisions towards my future. Instead I would like to turn this into an opportunity to learn

Figure 3-b. Same writer beginning therapy.



There is a problem I would like to deal with in my life but I am not sure how to and the difficulty I have been having seems to be... Instead I would prefer to turn this into an opportunity to learn more about how I am as a learner and I trust that the analysis of my handwriting will yield insights into how I can

Figure 3-c. Same writer after successful therapy.

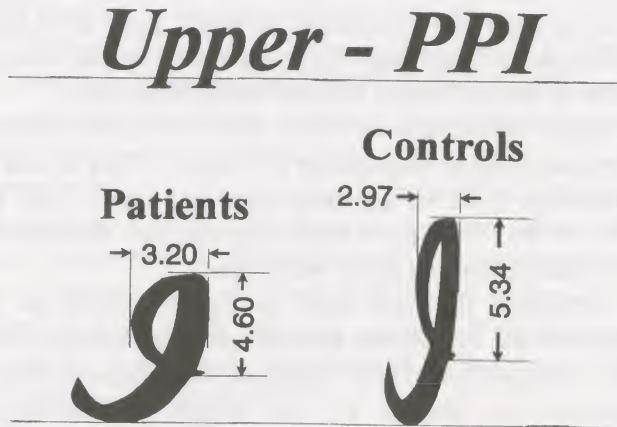


Figure 4. The Upper Personal Pronoun I (U-PPI) height measurements for alcoholic therapy group and control group.

“will power,” then this finding would suggest a decided loss of “will power” in the alcohol abuse population. They have lost the ability to a large degree of persevering, of carrying out desires.

The angle of the letter *l* was not significantly smaller in the alcohol abuse handwriting. However, a smaller mean of the angle of the letter *l* compared to the control population suggests that the alcohol population may be slightly less emotional in their decision-making and less interested in making contact with other people in general.

A study of Lewinson (1986) of 70 handwriting samples compared handwritings from before the onset of alcoholism to the recovery period. A number of characteristics were found in the extreme. Most noticeably extremely large or extremely small handwritings. Extremes in the height of upper and lower lengths and extremes in breadth of the letters were also observed.

The evidence from our study shows that seven of fifteen measurements are significantly smaller in the writing of the alcohol abuse population compared to controls and suggests that the total writings of the alcohol abuse population tends to be smaller in both height and width measurements. This view is substantiated by the fact that a comparison of the means of the two populations shows 14 or 15 of the means of the alcohol abuse population to be smaller than controls.

Lester (1981) reports several studies where alcohol changes handwriting. What is needed is an accurate knowledge of what kind of changes are produced and under what conditions. This paper may be a step in the direction of accurately depicting the effects of alcohol on the abuser under treatment.

Study of handwriting allows for a more positive means of determining whether the patient or client is responding to therapy. This would help meet a need for the mental health field to identify patient needs and resources. Thus, handwriting offers a way to best adapt appropriate therapeutic environs and treatment to fit the individual patient's competency.

Further, alcoholic patients and caregivers need an indicator of the unconscious mindset of the patient so that the level of motivation towards therapy can be determined. Robertson (1992) suggests that handwriting may be used to demonstrate unconscious ability of the writer to participate in therapy. Handwriting samples taken early on and during the process of psychotherapy may well indicate whether the patient is responding to therapy or not.

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BIOGRAPHY: George Bishop is a certified senior levels addictions counselor in the state of Colorado. He holds a Master of Arts degree in counseling from Northern Arizona University, and certification in handwriting analysis from IGAS. Mr. Bishop was recognized in 1989-1990 for contributions to counselor development in the field of psychotherapy.